

REMARKS/ARGUMENTS

Claims 2-10 are pending in the application. Claims 1 and 11-23 have been canceled.

Independent Claim 2 has been amended to more clearly recite the orientation of the main pole in the perpendicular recording head. Specifically, the amended claim recites that the main pole comprises a layer of magnetically permeable material plated on the surface of the substrate defining a plane substantially parallel with the tracks of the magnetic recording medium and substantially perpendicular to a plane defined by the magnetic recording medium. Examples of such a main pole orientation are shown in Figs. 2 and 3, and are described at page 9, lines 7-13, page 11, lines 4-8 and page 12, line 24 to page 13, line 17 of the application. No issue of new matter is presented.

35 U.S.C. § 112 Rejections

Claims 7 and 8 stand rejected under 35 U.S. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. According to the Office Action, a “recording head” is set forth in Claims 2, 7 and 8, while Claims 7 and 8 also recite a “read head”. The Office Action states that is unclear how a read head can be a recording head.

Applicants submit that Claims 7 and 8 meet the enablement requirements of 35 U.S.C. § 112, first paragraph. Independent Claim 2 recites a perpendicular recording head. Dependent Claim 6, which depends from Claim 2, recites that the perpendicular recording head is a write head. Dependent Claims 7 and 8, which depend from Claim 2, recite that the recording head is either a magnetoresistive read head or a giant magnetoresistive read head. As shown in Fig. 2 and described at page 9, lines 7-13 and page 11, lines 4-8 of the specification, one embodiment of the presently claimed perpendicular recording head is a write head. As shown in Fig. 3 and described at page 12, line 24 to page 13, line 17 of the specification, another embodiment of the presently claimed perpendicular recording head is a read head. The term “recording head” recited in independent Claim 2 is thus intended to cover both write head and read head embodiments. It is submitted that both embodiments are adequately described in

the specification, and the presently claimed invention meets the enablement requirements of 35 U.S.C § 112, first paragraph.

Claim 9 stands rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. According to the Office Action, the specification only provides enablement for a maximum track width of 300 nm, but not a lower track width value.

By the present Amendment, Claim 9 has been amended to recite a minimum track width of 20 nm. Basis for the amended claim language is provided in the specification, for example, at page 10, lines 25-27, where a lower limit of 20 nm is disclosed. It is submitted that Claim 9 meets the enablement requirements of 35 U.S.C. § 112, first paragraph.

35 U.S.C. § 102 and 103 Rejections

Claims 2-6 and 10 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Lazzari '924. According to the Office Action, Lazzari '924 shows in Fig. 6 a recording or write head including a non-magnetic substrate (10) having a surface oriented in a plane substantially parallel with tracks of the magnetic recording medium. Claims 7-9 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lazzari '924. The Office Action acknowledges that Lazzari '924 is silent as to read heads, and is silent as to a track width of 300 nm, but states that such modifications would be obvious. It is submitted that amended independent Claim 2, and the claims that depend therefrom, are patentable over Lazzari '924.

Amended Claim 2 recites a perpendicular recording head including a main pole comprising a layer of magnetically permeable material plated on the surface of the substrate defining a plane substantially parallel with the tracks of the magnetic recording medium and substantially perpendicular to a plane defined by the magnetic recording medium. Non-limiting examples of such a main pole structure are shown in Figs. 2 and 3 of the application. In the embodiment shown in Fig. 2, the main pole (30) comprises a layer of magnetically permeable material plated on the surface of the substrate (36). The main pole layer (30) defines a plane substantially parallel with the tracks (50) of the magnetic recording medium (16) and

substantially perpendicular to a plane defined by the magnetic recording medium (16). In the embodiment shown in Fig. 3, the main pole (94) comprises a layer of magnetically permeable material plated on the surface of the substrate (36). The main pole layer (94) defines a plane substantially parallel with the tracks (50) of the magnetic recording medium (16) and substantially perpendicular to a plane defined by the magnetic recording medium (16). No such main pole structure is taught or suggested by Lazzari '924.

Lazzari '924 discloses a longitudinal magnetic recording head including an insulating substrate (10) and first magnetic film (16) which are located away from the recording surface of the head, and a two-part magnetic film (46, 48) separated by a non-magnetic spacer (42) which are located at the recording surface of the head (see Fig. 6 and column 2, line 45 to column 3, line 31 of Lazzari '924). Nowhere does the reference teach or suggest a perpendicular recording head including a main pole defining a plane substantially parallel with the tracks of the magnetic recording medium and substantially perpendicular to a plane defined by the magnetic recording medium, as recited in Claim 2. The recording head disclosed by Lazzari '924 is a longitudinal recording head rather than a perpendicular recording head as presently claimed. Moreover, the recording head of Lazzari '924 lacks a main pole as presently claimed, and further lacks any type of pole comprising a layer defining a plane substantially parallel with the tracks of the magnetic recording medium and substantially perpendicular to the plane defined by the magnetic recording medium. Accordingly, Claim 2 distinguishes over Lazzari '924.

In view of the foregoing amendments and remarks, it is submitted that Claim 2, and the claims that depend therefrom, meet the requirements of 35 U.S.C. § 112, and are patentable over the prior art of record. Accordingly, an early Notice of Allowance of this application is respectfully requested.

Application No. 09/695,679
Amendment dated August 18, 2004
Reply to Office Action of May 24, 2004

In the event that any outstanding matters remain in connection with this application, the Examiner is invited to telephone the undersigned at (412) 263-4340 to discuss such matters.

Respectfully submitted,



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